

## SILVERIZED CATGUT—THE ARGYROL METHOD.

THE USE OF ARGYROL IN ITS PREPARATION.

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DURING the last eighteen months, following a visit to the clinic of Cr  d  , in Dresden, I have used catgut which I have prepared with a ten per cent. solution of argyrol. The method is as follows:

Catgut is purchased in the ordinary five yard length; it is then cut into strands eighteen inches long; these lengths are then placed in a basin of sterile water to slightly soften the gut and make it more easy to handle.

The gut may be made into little coils by winding around the first two fingers; the last one inch being twisted around the little coils to hold them together. This is not recommended as the gut is liable to snarl.

Three-eighths glass tubing may be cut into one-inch lengths, the ends being carefully annealed. The gut may be wound around these little tubes so that the first lap or two will hold the starting-point firmly, and the last end can be held by a half-hitch around the tube (I use the tube instead of the rod in order to have less weight and allow the solution to circulate more freely in the receptacle or jar containing the gut under preparation).

The gut is now soaked in the ten per cent. solution of argyrol made up with distilled water, for ten days. I have used one-quart jars, having wide mouth and ground-glass stoppers.

After labelling the jar with the size of the gut and the date on which the process is started, it is my custom to envelop it in a sterile towel, pinned to hold it in place, and to protect it from the dust and strong light. Each day the jar is agitated

slightly in order to keep the argyrol more completely in solution.

At the end of ten days the jar is gently shaken each hour for several hours previous to the time planned to take the gut out of the solution, in order to mix well any portion that may have settled on the tubes of gut or at the bottom of jar. A piece of sterile gauze is placed over the mouth of bottle, the bottle turned upside down over a sterile funnel in order to keep the tube from coming out and to save the solution that it may be returned to the stock receptacle for future use. An irrigator filled with sterile water, or sterile glass tube, is used to wash the gut in order to free it of any superfluous argyrol solution. This is done by letting into the jar some of the sterile water, shaking the jar gently in order not to detach the gut from the tubes. This process is repeated several times until the wash-water comes away clear.

The gut is then stored in pure alcohol where it can be kept indefinitely. The alcohol tightens the gut on the tube so that it is not easily detached although it is easily removed from the tube when you wish to use it. The gut is now ready for use after an hour or two in the alcohol.

In October, 1907, Dr. Charles T. McClintock, Director of the Biological Department of Parke, Davis and Company, examined several samples of this gut and found it to be sterile. Practical experience has demonstrated its sterility.

It is my opinion that catgut prepared with argyrol is an ideal gut and is not only thoroughly aseptic but is antiseptic and has the tenacity of the original gut. I have used it in various kinds of surgical cases, have used it in many abdominal operations; have used it almost universally in closing deep wounds layer by layer, and it has been especially satisfactory as a skin suture using the number "o" or the number "1."

Its use as a skin-suture has been not less satisfactory than has been my experience during the past several months in its use as a buried suture; the results from its use have been practically perfect; better to my mind than any other suture material.

The advantage of the argyrol solution over the collargolum<sup>1</sup> is that it does not precipitate so readily, and its power to penetrate into the centre of the strand is greater. It cannot be said that its aseptic qualities are any greater than that prepared with collargolum although I like its practical application better and when used for skin suture I believe it is much more satisfactory.

From my experience with the various methods of preparing catgut, I believe the argyrol method is entirely practical, is extremely satisfactory, and is recommended for its simplicity.

NOTE.—In a communication received from Professor Cr  d  , dated February 22, 1908, he states that he now prefers to prepare silver catgut with silver lactate, actol, which he considers to be easier to prepare, more stable, and more antiseptic. His technic is as follows:

Raw catgut, just as it is received from the manufacturer, is wound on a glass reel and submerged in a one (1) per cent. solution of actol, in which it is left for one week; the glass jar in which it is placed being wrapped with cardboard to keep out the light. After eight (8) days, the solution is poured off, the open jar covered with four (4) thicknesses of gauze, and exposed to the light until the strands have turned black; distilled water is then repeatedly poured over the catgut in the jar until the water remains clear. The jar is again covered with four thicknesses of gauze and stood in a warm place until it is thoroughly dried out; then it is closed with a cover, for it is ready for use, not having been touched with the fingers during the process of preparation. Before using, a reel is placed in a dish containing 60 per cent. alcohol, out of which it is used during operation. Strong alcohol makes it too stiff and less firm.

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<sup>1</sup> Blake, *Annals of Surgery*, 1907, xlv, 110.